

Administrative Record¹ Relating to EPA's Decision for
Ohio 2016 Integrated Water Quality Monitoring and Assessment Report (IR)
May 2017

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3	4/25/17	Lawsuit Case 1:17-cv-00756 Document 1 Filed 04/25/17 Plaintiffs: National Wildlife Federation, Alliance for the Great Lakes, Lake Erie Charter Boat Association, Lake Erie Foundation, Michigan League of Conservation Voters, Michigan United Conservation Clubs, and Ohio Environmental Council Defendants: Scott Pruitt, Robert A. Kaplan And attachments	10 18
4	3/31/17	Response to comment letter re: 2016 listing of the Western Basin of Lake Erie To: Craig Butler From: Robert A. Kaplan	1
5	1/09/17	Notice of Intent to Sue Administrator of the Environmental Protection Agency for Failure to Perform Its Nondiscretionary Duty Under the Clean Water Act from Environmental Law & Policy Center To: Gina McCarthy From: Madeline Fleisher	3
6	2017	USEPA-GLNPO. Great Lakes Water Quality Monitoring Program Lake Erie Spring Phosphorus and Chlorophyll-a Annual Basin Averages 1983-2015. 2017. U.S. Environmental Protection Agency - Great Lakes National Program Office. Not Available Online	10
7	2017	State of Ohio. 2017. Western Lake Erie Basin Collaborative Implementation Framework. http://epa.ohio.gov/Portals/33/documents/WLEBCollaborative.pdf	41
8	2017	NOAA – GLERL. 2017. “Algal Blooms.” National Oceanic and Atmospheric Agency - Great Lakes Environmental Research Laboratory. Flickr website. https://www.flickr.com/photos/noaa_glerl/sets/72157639592150973/with/8741968640/	

¹ The documents in the general administrative record file for the decision regarding Ohio's 2016 303(d) list are listed in a separate administrative record index at the end of this record.

9	12/19/16	Notice of Intent to File a Citizen Suit under the Clean Water Act To: Gina McCarthy From: Neil Kagan of 745 Legal Research, representing Alliance for the Great Lakes, Lake Erie Charter Boat Association, Lake Erie Foundation, Michigan League of Conservation Voters, Michigan United Conservation Clubs, National Wildlife Federation, and Ohio Environmental Council	6
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28	10/16	Adams, J., Stadler-Salt, N. U. S. Environmental Protection Agency and Environment and Climate Change Canada. How are the Great Lakes Doing? A presentation at the Great Lakes Public Forum. October 2016. https://binational.net/wp-content/uploads/2016/11/01%20SOGL%20Presentation%20ENG.pdf	91
29	10/16	Bingham, M., Sinha, S.K., Lupi, F. "Economic Benefits of Reducing Harmful Algal Blooms in Lake Erie", Submitted to the International Joint Commission. Environmental Consulting & Technology, Inc., Report, 66 pp, October 2015. http://ijc.org/files/tinymce/uploaded/Publications/Economic-Benefits-Due-to-Reduction-in-HABs-October-2015.pdf	74
30	9/30/16	Response to 8/29/16 comments on Draft Ohio 2016 Integrated Report	4
31	8/29/16	Comments on Draft Ohio 2016 Integrated Report	5
32	7/28/16	Draft Ohio 2016 Integrated Water Quality Monitoring and Assessment Report	Misc.
33	7/07/16	NOAA. 2016. "NOAA, partners predict smaller harmful algal bloom for western Lake Erie". National Oceanic and Atmospheric Agency. Website. July 7, 2016. http://www.noaa.gov/media-release/noaa-partners-predict-smaller-harmful-algal-bloom-for-western-lake-erie	5
34	7/16	ORSANCO. 2014. 2014 Biennial Assessment of Ohio River Water Quality Conditions, Ohio River Valley Water Sanitation Commission. Cincinnati, Ohio http://www.orsanco.org/wp-content/uploads/2016/07/2014305breport.pdf	75
35	4/16	Nord, M., Hinchey, E., Bolks, A., and Bartsch, W. Technical Memorandum 2010 National Coastal Condition Assessment Great Lakes. 2016. Prepared by U. S. EPA from National Coastal Condition Assessment Report. https://www.epa.gov/sites/production/files/2016-07/documents/ncca_great_lakes_2010_tech_memo.pdf	62
36	6/16	Ohio Department of Health. "Harmful Algal Blooms - Implications for Tap/Drinking Water and Recreational Waters". June 2016. Website. https://www.odh.ohio.gov/odhprograms/eh/HABs/algalblooms.aspx	1
37	5/24/16	State of Ohio. 2016. State of Ohio Harmful Algal Bloom Response Strategy For Recreational Waters.	49

		Ohio Department of Health, Ohio Environmental Protection Agency, Ohio Department of Natural Resources. https://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/eh/HABs/2016/2016-Revised-HAB-Strategy-5242016.pdf?la=en	
38	1/22/16	USEPA and Environment Canada. 2015. Lake Erie Lakewide Action and Management Plan. Annual Report. U.S. Environmental Protection Agency https://binational.net/2016/01/22/lelampar-2015-paaplera/	4
39	2016	USEPA. 2016. "Fact Sheet and Analysis - Economic Impacts of Harmful Algal Blooms Research Project". U.S. Environmental Protection Agency. Region 5 Water Division, Alex Schusler. Not Available Online	6
40	12/20/15	Seewer, John and Flesher, John. "Rising water, algae blooms impact Lake Erie fishing" Associated Press. December, 2015. http://www.post-gazette.com/sports/hunting-fishing/2015/12/20/Rising-water-algae-blooms-impact-Lake-Erie-fishing/stories/201512200014	4
41	11/12/15	Winslow, C. J. A Close Look at Lake Erie HABS and Current Research Efforts. A presentation to the Ohio Water Environment Association. November 12, 2015. http://www.ohiowea.org/docs/Winslow_Lake_Erie.pdf	36
42	10/9/15	Patch, David. "Algae costly to Lake Erie tourism industry" Toledo Blade. Toledo. October 9, 2015. http://www.toledoblade.com/local/2015/10/09/Algae-costly-to-tourism-industry.html	4
43	10/08/15	Denton, Jessica. "Lake Erie's 2015 Algal bloom effects revealed." Port Clinton News Herald, October 8, 2015. http://www.portclintonnewsheald.com/story/news/2015/10/08/lake-eries-2015-algal-bloom-effects-revealed/73587538/	4
44	10/02/15	Cleveland.com. "Lake Erie algal blooms prove toxic for tourism: editorial". Editorial Board, October 2, 2015. http://www.cleveland.com/opinion/index.ssf/2015/10/lake_erie_algal_blooms_prove_toxic_for_tourism_editorial.html	3
45	8/29/15	Seewer, John. "Algae in western Lake Erie eats into fishing business" Detroit Free Press. Copyright 2015 The Associated Press. August 29, 2015. http://www.freep.com/story/news/local/michigan/2015/08/29/algae--western-lake-erie-eats-into-fishing-business/71383504/	3
46	8/20/15	Payerchin, Richard. "Group looking at effects of Lake Erie algae bloom". The Morning Journal, Lorain County, Ohio. August 20, 2015. http://www.morningjournal.com/article/MJ/20150820/NEWS/150829944	3
47	8/15	Ohio Travel Association. 2015. Tourism and Algal Blooms: Economic Impact Fact Sheet August 2015. http://www.ohiotravel.org/aws/OHTRV/asset_manager/get_file/108345/tourism_and_algal_blooms_economic_impact_fact_sheet.pdf	2

48	6/25/15	USEPA and Environment Canada. 2014. Lake Erie Lakewide Action and Management Plan. Annual Report. U.S. Environmental Protection Agency https://binational.net/2015/06/05/lelampar-2014-paaplera/	
49	6/13/15	Western Basin of Lake Erie Collaborative Agreement. Governors for the Western Lake Erie Basin States of Michigan and Ohio and the Premier of the Province of Ontario, June 13, 2015 https://www.michigan.gov/documents/snyder/Western_Basin_of_Lake_Erie_Collaborative_Agreement-Lieutenant_Governor_491709_7.pdf	2
50	6/13/15	USEPA-GLNPO Phosphorus Graphs, 1983-2012. 2012. U.S. Environmental Protection Agency - Great Lakes National Program Office. Not Available On Line	15
51	6/23/16	NCCOS and NOAA. 2015. Lake Erie Harmful Algal Bloom Early Season Projection. National Centers for Coastal Ocean Science, National Oceanic and Atmospheric Agency, and National Center for Water Quality Research. Webpage. http://www2.nccos.noaa.gov/coast/lakeerie/bulletin/projection_2015-06.pdf	1
52	4/09/15	Erickson, Jim. "U-M researchers track the toxicity of Lake Erie cyanobacterial blooms". Michigan News. University of Michigan. April 9, 2015. http://ns.umich.edu/new/releases/22804-u-m-researchers-track-the-toxicity-of-lake-erie-cyanobacterial-blooms	4
53	2/18/15	Borchardt, Jackie. "Bill targeting Lake Erie algal blooms passes Ohio Senate". February 18, 2015. Retrieved from URL. http://www.cleveland.com/open/index.ssf/2015/02/bill_targeting_lake_erie_algal_blooms_passes_ohio_senate.html	2
54	1/19/15	Eaken, J. Patrick. "Local economy bruised by harmful algal blooms in the lake." Press Publications, January 19, 2015. http://www.presspublications.com/newspaper/special-reports/397-saving-lake-erie/15280-local-economy-bruised-by-harmful-algal-blooms-in-the-lake	3
55	2015	Stow, C.A.; Cha, Y.K.; Johnson L.T.; Confesor, R.; Richards, R.P. Long-Term and Seasonal Trend Decomposition of Maumee River Nutrient Inputs to Western Lake Erie. <i>Environmental Science & Technology</i> . 2015. 49 (6), 3392-3400. http://pubs.acs.org/doi/full/10.1021/es5062648?src=recsys	9
56	2015	NOAA-GLERL. Lake Erie Microcystin Sampling Data. National Oceanic and Atmospheric Agency - Great Lakes Environmental Research Laboratory. Retrieved from URL. https://www.glerl.noaa.gov/res/HABs_and_Hypoxia/WLEMicrocystin2015.html	
57	5/11/15	Great Lakes Water Quality Agreement, (GLWQA), 2015. Recommended Phosphorus Loading Targets for Lake Erie. Annex 4 Objectives and Targets Task Team. https://www.epa.gov/sites/production/files/2015-06/documents/report-recommended-phosphorus-loading-targets-lake-erie-201505.pdf	80

58	10/15/14	Erickson, Jim. "Lake Erie increasingly susceptible to large cyanobacteria blooms". Michigan News. University of Michigan. October 15, 2014. http://ns.umich.edu/new/releases/22444-lake-erie-increasingly-susceptible-to-large-cyanobacteria-blooms	3
59	8/14	OEPA. 2014. "Financial Incentives to Address Harmful Algal Blooms". Ohio EPA - Division of Drinking and Ground Waters, Aug. 2014. http://www.epa.state.oh.us/Portals/47/media/HABfundFSAug14.pdf	2
60	2014	USEPA. 2014. Cyanobacteria and Cyanotoxins: Information for Drinking Water Systems. U.S. Environmental Protection Agency, Office of Water. September 2014. https://www.epa.gov/sites/production/files/2014-08/documents/cyanobacteria_factsheet.pdf	9
61	2014	OEPA. 2014. Ohio 2014 Integrated Report. Ohio Environmental Protection Agency. http://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx	
62	2014	Karatayev, A.Y., et al. 2014. Twenty five years of changes in Dreissena spp. populations in Lake Erie, <i>J. Great Lakes Res.</i> http://dx.doi.org/10.1016/j.jglr.2014.04.010 . http://aqeco-vadim.weebly.com/uploads/3/7/6/8/37683885/karatayev_et_al_2014.pdf	10
63	2014	IJC. 2014. A Balanced Diet for Lake Erie: Reducing Phosphorus Loadings and Harmful Algal Blooms. International Joint Commission. Report of the Lake Erie Ecosystem Priority. http://www.ijc.org/files/publications/2014%20IJC%20LEEP%20REPORT.pdf	100
64	2014	Environment Canada and U. S. Environmental Protection Agency. 2014. State of the Great Lakes 2011. https://binational.net/wp-content/uploads/2014/11/sogl-2011-technical-report-en.pdf	555
65	10/21/13	USEPA and Environment Canada. 2013. Lake Erie Lakewide Action and Management Plan. Annual Report. U.S. Environmental Protection Agency https://binational.net/2013/10/21/lelampar-2013-paaplera/	4
66	10/13	OEPA. 2010. Ohio Lake Erie Phosphorus Task Force Final Report. pp. 1-109. Ohio Environmental Protection Agency. http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task_Force_Report_October_2013.pdf	109
67	6/28/13	OEPA. 2013. Ohio Nutrient Reduction Strategy. Ohio Environmental Protection Agency. http://epa.ohio.gov/dsw/wqs/NutrientReduction.aspx	92
68	2013	Michalak, A. M., Anderson, E. J., Beletsky, D., Boland, S., Bosch, N. S., Bridgeman, T. B., ... Zagorski, M. A. (2013). Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 110(16), 6448–6452. http://doi.org/10.1073/pnas.1216006110 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3631662/	5

69	5/2013	LimnoTech 2013. An Approach for Determination of Phosphorus Objectives and Target Loads for Lake Erie, Draft Prepared for Environment Canada. pp. 1-50. https://yosemite.epa.gov/sab/sabproduct.nsf/C56FA0838929CDC485257D8E0078F8F5/\$File/Approach+for+Determination+of+Phosphorus+Objectives+and+Target+Loads+in+Lake+Erie.pdf	57
70	2013	Koslow, M., Lillard, E., Benka, V. TAKEN BY STORM - How Heavy Rain is Worsening-Algal Blooms in Lake Erie with a Focus on the Maumee River in Ohio. 2013. National Wildlife Federation and the University of Michigan. https://www.nwf.org/~media/PDFs/Water/Taken_By_Storm_NWF_2013.ashx	25
71	6/2013	DePinto, Joseph V. Toward Operational Ecosystem Modeling to Support Adaptive Management in the Great Lakes. 2013. International Association for Great Lakes Research. Presentation at the 56 th Annual Conference on Great Lakes Research. http://iaglr.org/conference/about.php	21
72	2013	“Algae blooms spread in Lake Erie, affect fishing industry.” Copyright 2013. Toledo News Now. Website. http://www.wtol.com/story/23198451/algae-blooms-spread-in-lake-erie-affect-fishing-industry	1
73	11/28/12	USEPA and Environment Canada. 2012. Lake Erie Lakewide Management Plan. Annual Report. U.S. Environmental Protection Agency https://binational.net/2012/11/28/lelampar-2012-paaplera/	4
74	2012	Bridgeman, T. B., et al., A novel method for tracking western Lake Erie <i>Microcystis</i> blooms, 2002–2011. J Great Lakes Res (2012) http://www.sciencedirect.com/science/article/pii/S038013301200233X	7
75	2012	USEPA-GLNPO Phosphorus Graphs, 1983-2012. 2012. U.S. Environmental Protection Agency - Great Lakes National Program Office. Not Available On Line	9
76	2012	USEPA and Environment Canada. 2012. 2012 Great Lakes Water Quality Agreement. U.S. Environmental Protection Agency and Environment Canada (ed). Annex 4. http://ijc.org/files/tinymce/uploaded/GLWQA%202012.pdf	56
77	2012	Stumpf R.P., Wynne T.T., Baker D.B., Fahnenstiel G.L. (2012) Interannual Variability of Cyanobacterial Blooms in Lake Erie. PLoS ONE 7(8): e42444. https://doi.org/10.1371/journal.pone.0042444	11
78	12/2012	Lake Erie Improvement Association. 2012. Strategic Plan for Lake Erie Partners: Sustaining Healthy Waters for Lake Erie’s Economy. http://www.lakeerieimprovement.org/wp-content/uploads/2012/02/leia-strategic-plan-final-12-17-2012.pdf	63
79	2011	USEPA and Environment Canada. 2011. Lake Erie Binational Nutrient Management Strategy. U.S. Environmental Protection Agency and Environment Canada. https://www.epa.gov/sites/production/files/2015-09/documents/binational_nutrient_management.pdf	30
80	2011	OEPA. 2011. Photo Gallery of Ohio HABs. Ohio Environmental Protection Agency. Webpage. http://epa.ohio.gov/portals/35/inland_lakes/PHOTO%20GALLERY%20OF%20OHIO%20HABs.pdf	18

81	2010	USEPA. 2010. <i>Guidance for Implementing the January 2001 Methylmercury Water Quality Criterion</i> . EPA 823-R-10-001. U.S. Environmental Protection Agency, Office of Water, Washington, DC. https://nepis.epa.gov/Exe/ZyPDF.cgi/P1007BKQ.PDF?Dockkey=P1007BKQ.PDF	221
82	2010	ODNR 2010. Blue-green Algae/Cyanobacteria Harmful Algal Blooms (HABs), Ohio Department of Natural Resources. Webpage. http://watercraft.ohiodnr.gov/education-safety/safety-library/health-safety/harmful-algal-blooms	
83	2010	Lake Erie Lakewide Management Plan. 2009. Status of Nutrients in the Lake Erie Basin. Lake Erie Nutrient Science Task Group. https://www.epa.gov/sites/production/files/2015-10/documents/status-nutrients-lake-erie-basin-2010-42pp.pdf	42
84	8/03/2009	US Army Corps of Engineers. 2009. Western Lake Erie Basin Study Maumee Bay Watershed Assessment. Western Lake Erie Basin Partnership. Buffalo, NY. http://wleb.org/leadership/files/Maumee%20Bay%20Final%20Assessment%20091509.pdf	94
85	10/12/06	USEPA 2006. <i>Guidance for 2008 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act</i> . U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/sites/production/files/2015-10/documents/2006_10_27_tmdl_2008_ir_memorandum.pdf	
86	7/29/05	USEPA. 2005. <i>Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act</i> . U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/sites/production/files/2015-10/documents/2006irg-report.pdf	89
87	7/21/03	USEPA. 2003. <i>Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act</i> . U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/sites/production/files/2015-10/documents/2003_07_23_tmdl_tmdl0103_2004rpt_guidance.pdf	38
88	11/19/01	Wayland, Robert H. III. 2001. “2002 Integrated Water Quality Monitoring and Assessment Report Guidance.” Memo to EPA Regional Science and Technology Directors; State, Territory and Authorized Tribe Water Quality Program Directors. Office of Wetlands, Oceans, and Watersheds, November 19, 2001. https://www.epa.gov/sites/production/files/2015-10/documents/2002_02_13_tmdl_2002wqma.pdf	28
89	1999	OEPA. 1999. Association Between Nutrients, Habitat and the Aquatic Biota in Ohio Rivers and Streams. Ohio EPA Technical Bulletin MAS/1999 1-1. Ohio Environmental Protection Agency, Division of Surface Water, Columbus, Ohio.	78

		http://www.epa.state.oh.us/portals/35/documents/assoc_load.pdf	
90	4/1991	USEPA. 1991. <i>Guidance for Water Quality-Based Decisions: The TMDL Process</i> . EPA-440/4-91-001. U.S. Environmental Protection Agency, Office of Water. Washington, D.C. https://www.eli.org/guidance-policy-documents/guidance-water-quality-based-decisions-tmdl-process	62
91	1980	IJC. 1980. Phosphorus Management for the Great Lakes. International Joint Commission. Phosphorus Management Strategies Task Force. Windsor, Ontario. http://agrienvarchive.ca/download/P-management_G_lakes.pdf	143
92		NOAA-GLERL. Harmful Algal Blooms In The Great Lakes. National Oceanic and Atmospheric Agency - Great Lakes Environmental Research Laboratory. Fact sheet. Date Published Not Available. https://www.glerl.noaa.gov/pubs/brochures/bluegreenalgae_factsheet.pdf	2
93	2015	Smith, D. R, King, K. W, Williams, MR. What is causing the harmful algal blooms in Lake Erie. Journal of Soil and Water Conservation Online. Doi:10.2489/jswc.70.2.27A http://www.jswconline.org/content/70/2/27A.full.pdf	3
94		Schmeltz, Thomas. "Algal blooms tough on fishing industry". Bowling Green State University. Date Published Not Available. Retrieved from URL. http://bgsujournalism.com/j4200/maumee/?page_id=7%20-%20sthash.DxWJtgpr.dpbs#sthash.VVbRe3SA.dpbs	3
95		"Stone Lab Algal and Water Quality Laboratory. Charter Boat Captions Help Monitor Lake Erie Water Quality". Data retrieved from URL. https://ohioseagrant.osu.edu/research/live/water	5
96		Alex, Shaunae. Nutrients and Algae. Presentation. Date Published not Available.	14
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